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ABSTRACT

In 1967-68, the San Jose Unified District, in cooperation with the Education Division of the Lockheed Missiles and Space Co., implemented a special program for disadvantaged, underachieving, eighth-grade students. The primary objective of the program was to improve the motivation and achievement of disadvantaged students by providing special mathematics and reading instruction in combination with field trips and other activities designed to demonstrate the relevance of classroom learning to the solution of real-world problems. A second wave of eighth graders entered the program in 1968, and the first-year students went on to a newly developed ninth-grade R-3 curriculum, the three R's signifying student readiness, subject relevance, and learning reinforcement. In 1969, new State regulations required the project to include the entire seventh-grade population of the school in the program. The program was forced to drop the eighth- and ninth-grade program temporarily in order to handle the new and larger seventh-grade service group. Plans were made to reexpand the R-3 program to the eighth and ninth grades as the seventh graders progressed through those grades in succeeding years. The 1970-71 program included all 240 eighth-grade students, and the 1971-72 program continues the program for these students in the ninth grade. (Author/JM)

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Model Programs

DHEW Publication No. (OE) 72-90

Compensatory Education

Project R-3
San Jose, California

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FOREWORD

This is the third in NCEC's *Model Programs* series, whose purpose is to inform educators about successful ongoing programs and to provide them with sufficient information to decide if locally modified replications would be desirable. Included in this series are descriptions of 15 "successful" compensatory education programs for disadvantaged children currently operating in the Nation's schools.

Under contract to the Office of Education, the American Institutes for Research in the Behavioral Sciences, Palo Alto, Calif., identified—through a literature search and nominations by local, State, and national education agencies—over 400 candidate programs in this area. Of this number only 17 met the stringent criteria for success established by AIR in conjunction with OE. It should be noted that most of the programs rejected during the study were not rejected because they were demonstrated failures but rather because their evaluation methodology was so inadequate that a conclusion about success or failure could not be drawn.

Short descriptions of each program in the series have been prepared, covering such topics as context and objectives, personnel, methodology, inservice training, parent involvement, materials and equipment, facilities, schedule, evaluation data, budget, and sources for further information.

Six of the programs in this series were formerly written up in the *It Works* series published by OE in 1969. These six continue to operate successfully, as evidenced by the evaluation data; and since the *It Works* booklets are out of print, the program descriptions have been updated and included in this *Model Programs* series.

Two other programs—Programed Tutorial Reading Project, Indianapolis, Ind., and Summer Junior High Schools, New York, N.Y.—identified as exemplary compensatory education programs were included in the former *Model Programs* series on reading. Since these program descriptions are still available from the U.S. Government Printing Office, they were not republished for this series.

Two previous *Model Programs* series have been issued—on reading (10 programs) and childhood education (33 programs). Booklets on these programs are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 for 15 cents to 25 cents each.

Project R–3
San Jose, Calif.

Overview

In 1967–68 the San Jose Unified School District, in cooperation with the Education Division of the Lockheed Missiles and Space Co., implemented a special program for disadvantaged, underachieving, eighth-grade students. The primary objective of the project was to improve the motivation and achievement of disadvantaged students by providing special mathematics and reading instruction in combination with field trips and other activities designed to demonstrate the relevance of classroom learning to the solution of real-world problems. A second wave of eighth graders entered the program in 1968, and the first-year students went on to a newly developed ninth-grade R–3 curriculum, the three R's signifying student *R*eadiness, subject *R*elevance, and learning *R*einforcement.

In 1969, new State regulations required the project to include the entire seventh-grade population of the school in the program, rather than the original target group of eighth-grade underachievers. The program was forced to drop the eighth- and ninth-grade program temporarily in order to handle the new and larger seventh-grade service group. Plans were made to reexpand the R–3 program to the eighth and ninth grades as the seventh graders progressed through those grades in succeeding years.

The 1970–71 program included all 240 eighth-grade students, and the 1971–72 program continues the program for these students in the ninth grade. The ethnic distribution is about 73 percent Spanish surname, 25 percent mixed Anglo, 1 percent black, and 1 percent Oriental.

Note.—This is an updating of the *It Works* series publication *Project R–3, San Jose, Calif.*, published by the Office of Education in 1969.

A majority of the students exhibit some or all of the following characteristics:

- Poor performance on standardized tests
- Classroom performance significantly below grade level
- Low level in verbal functioning
- Negative attitude toward school and education
- Low occupational and educational aspiration level
- Expectations of school failure
- High absentee rate

Other than the grade-level changes, the program approach has remained essentially unaltered since it began.

2 **Objectives**

Project R–3 is based on the philosophy that, if a student has the mathematics and reading skills necessary to function at grade level, he can succeed not only in other areas of education but also in the world of work. Working from this premise, Project R–3 has as its primary objective improving both reading and mathematics skills. The other objectives of Project R–3 are to change the self-image of students from one of failure to one of success, and to change their behavior patterns as students by providing them with immediate success experiences.

Description

Methodology

R–3 students are mostly English-speaking Mexican-Americans, 1 or more years below grade-level in mathematics or reading. Each morning for three periods they receive R–3 instruction which includes mathematics, reading, and a special R–3 activity period

designed to illustrate the relevance of classroom instruction to the solution of real-world problems. The remainder of the day is spent in the regular school curriculum: physical education, social studies, science, industrial arts or homemaking, and foreign language. Commercially available materials are used in the mathematics and reading classes; materials and activities associated with the special R–3 activity period were developed by Lockheed.

In both reading and mathematics classes, emphasis is placed on individualized instruction to meet the special needs of each student. Program personnel estimate that 70 percent of the classwork is done in an individualized learning situation and the other 30 percent in small groups of from two to seven students.

The reading component utilizes a diagnostic/prescriptive approach in a reading laboratory situation. The mathematics component uses a diagnostic/prescriptive approach as well as discovery techniques and multisensory inputs. Each student is on an individual progress program in both reading and mathematics. Relevance to the students' world is stressed.

The R–3 curriculum utilizes a modular approach to relate program activities closely to program goals. The annual program is composed of elements (units of study) which occupy given time segments and which impart certain of the overall program objectives. Each R–3 curriculum segment generally operates for 2 weeks (module). There are approximately 14 segments in the annual program. Two of these, known as intensive involvement periods, are a series of learning experiences built around a particular theme, and including one or more gaming/simulation activities. These 2- or 3-day intensive involvements require that students and project staff travel to a locale suitable to the activities. The highly structured student-teacher relationship is supplanted by a much freer atmosphere. Learning experiences conducted outdoors and away from class schedules and period bells help to promote this different educational environment. After the

return from an intensive involvement, classroom activities build on the experiences of the students.

The special R–3 activities include the study of occupations, transportation, and modern technology. During each R–3 activity, children are exposed to the knowledge and skills associated with working in an area, and they are required to solve realistic problems that often occur in those areas. For example, students learn soldering techniques, follow written instruction, develop flow charts, and solve mathematical problems relating to cost-reduction analysis in connection with the study of assembly occupations.

Field trips are highly structured and provide additional opportunities for students to see what the work-a-day world requires of its active participants.

The remainder of the day is spent in the regular school curriculum (physical education, social studies, science, industrial arts or homemaking, and foreign language).

4

Personnel

The following personnel are responsible for the eighth- and ninth-grade R–3 program:

Director (full-time)—The director makes the initial contact with the parents and maintains contact throughout the program; participates in the curriculum planning, evaluation meetings, and the R–3 periods of instruction; performs other duties similar to those of a school principal; coordinates the efforts of Lockheed, the school district, and the evaluation staffs; and directs intensive involvements.

Assistant director—The assistant director is involved in most of the director's activities outlined above.

Mathematics teacher (full-time)—This teacher instructs two periods of R–3 mathematics and codirects the R–3 activity period each morning. He participates in curriculum

planning and evaluation meetings, and in the intensive involvement field trips as an instructor.

Reading teacher (full-time)—This teacher teaches two periods of R–3 reading and codirects the R–3 activity each morning. She participates in curriculum planning and evaluation, and in the intensive involvement field trips.

Instructional aides—Aides assist the teachers in the classroom.

Electronic technician (full-time)—The technician operates and repairs the electronic equipment used daily in the R–3 classrooms and frequently for evening presentations.

Secretary (full-time)

In addition to the full-time staff, the project has access to the part-time services of civic and industrial personnel who are involved in planning and evaluation sessions and intermittent instructional activities.

Project R–3 inservice training is conducted during the first period of the schoolday. The staff utilizes this time for three periods a week for group meetings to coordinate activities, discuss common problems, share ideas, and plan ways to tie the major components of Project R–3 together. In addition, the R–3 program teachers who teach the same subject also meet for the other two periods a week to plan special activities for their classes. Other meetings and workshops are held as needed. For example, because work on R–3 curriculum was needed, a workshop was held for 3 weeks during the summer. Six of the program teachers and a Lockheed research specialist participated in developing the curriculum for the program.

5

Resources Needed

With the exception of the materials developed for the R–3 component, the intensive involvements, and some of the mathematics contracts, the project makes use of commer-

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cially available materials. A wide variety of audiovisual equipment is used—overhead, film, and slide projector; tape recorders; language masters; listening post; microphones; videotape cameras, monitors, and recording consoles; calculators and typewriters. The audiovisual materials include videotapes of lessons and trips, and tape-recorded materials such as guest lectures, slides, and films.

The materials and equipment used in Project R–3 are of secondary importance to the motivational components. Any available standard published materials, especially those emphasizing individualized instruction, can be adapted to teach the subject matter.

Minimal remodeling of classroom space was done to improve the environment and to add the necessary electrical outlets. Flexible conference-type tables and stacking chairs replaced conventional furnishings.

6 **Parental Involvement**

The parental involvement focuses on drawing parents and students together. Every effort is made to involve parents in all phases of the project, and regular home visitation by project staff is an important component. Parents are invited to visit classrooms and observe and participate in learning activities; Spanish-speaking personnel are available to assist them at the school. Parents are also encouraged to go on study trips and to the intensive involvement sites. Dinner meetings for parents, students, and program personnel are held periodically in the school cafeteria to review progress to date and plans for the future. Parents who are unable to attend are sent a newsletter about the meeting, one copy in English and one in Spanish.

Budget

In 1969 when Project R–3 changed from an experimental program to a demonstration program, cost effectiveness became an important replication guideline. Each year the program has been modified to achieve better cost effectiveness. In 1969–70 the oper-

ating budget was $144,000; in 1970–71 it was $121,000; and in 1971–72 it is $100,000. These savings in program cost have been made without sacrificing any of the program's unique techniques.

It is estimated that Project R–3 could be replicated at any junior high school grade level for about $250 per student over and above the normal per pupil cost.

Evaluation

Project R–3 contracts for an independent evaluation with the Rand Corp. of Santa Monica. The evaluation design provides for assessment of progress toward the goals of the project in the areas of both achievement and attitude. A major part of the effort focuses on evaluation for program improvement. Suggestions for program improvement are made to the project director. There is evidence that the project has benefited greatly from the contributions of disinterested observers.

Evaluation of student progress is based on pretest and posttest reading and arithmetic scores on the California Achievement Test. In the program's first year, the eighth-grade R–3 students showed significantly greater gains in both achievement areas than a control group of underachieving students in a comparable junior high school. The overall rate of gain was about 2 months per month in the program. New data since the *It Works* description indicate that in 1968–69 the second wave of eighth graders showed better than month-for-month gains, which in most cases were significantly greater than gains made by the control group. The rate of gain, however, was not as great as in 1967–68. The ninth graders who continued in the program from the previous year were not compared with a control group. Their rate of gain was approximately month-for-month during the ninth grade and better than month-for-month for the total 2-year period.

The 1969–70 evaluation was confounded by the aforementioned required change in the participant group composition and late funding of the program. Late funding resulted in a total treatment period of only 4 months. The seventh-grade students during those 4 months did show slightly better gains than a comparable control group; the difference, however, was not statistically significant.

Despite the 1969–70 experience, it can be concluded that Project R–3 was successful in improving the arithmetic and reading achievement of eighth-grade students for 2 consecutive years. Each year the R–3 students' gains were significantly greater than those of a control group and greater than those that would be expected from a group of average children in a regular classroom for a comparable period of time. The children who continued in the program through the ninth grade made less significant gains during the second year, but their average gain for the 2-year period was better than month-for-month.

Rand also designed a cost model that allows the project director to assess the impact of changes in the program configuration when planning future programs or modifying the current program. A method for allocating costs to each component was set up and implemented. This assures that instructional and noninstructional costs can be separately identified.

Replication

Many requests for information have been received by the program's staff. Although several schools have attempted to adopt single components of the project into their own programs, the only large-scale replication known to the director was one that began in Central Point District 6 in Medford, Oreg., in 1970–71. One hundred students partici-

pated in a pilot R–3 type program which did not include the special R–3 activity component. Evaluation data were not available in time to be reported here.

Many teachers, curriculum coordinators, and building administrators are reluctant to replicate promising programs because of difficulties encountered in planning and implementing the program. A specific focus throughout Project R–3 has been on the planning procedures necessary for partial or total replication of the program. As a result of this focus, several problem areas that might be potential obstacles to replication have been identified. Explicit solutions are not provided because each district has its own unique problems and its own program planning practices. The purpose here is to enumerate the considerations that should facilitate the tailoring of Project R–3 to the uniqueness of other districts. These considerations fall into five broad groups: preliminary planning, availability of resources, program development, operational procedures, and evaluation procedures. Each group is discussed below in either a question or a recommendation format.

Preliminary Planning

- Is there a need for this program in my school (district)? The whole program? A part? (If only part, which part?) What instruments should be used to determine the student needs?
- Would a program now under consideration fit into my school's (district's) organization and would the local school board approve it?
- Would the parents of the attendance area support and help plan a program?
- Could the curriculum of the program be developed by the personnel who would staff the program, or would it be necessary to work through district curriculum coordinators at the district level?
- How would my district staff a program?

- Would the school staff (teachers and administrators) receive a program and work as a team?
- What would be the administrators' roles with respect to the program?
- Who would have direct administrative control of the program?

Availability of Resources

Project R–3 can be replicated within reasonable financial constraints. There are, however, other resources that are essential to the implementation of the program. Most schools, or districts, have the needed resources briefly listed:

- Rooms, fixtures, and furniture that allow for a student-centered, activity-oriented instructional mode.
- Teachers of average ability and experience who can conduct classes in reading and/or math and related motivational activities.
- Instructional support services such as audiovisual center, remedial library center, professional library, depository of textbooks, and the services of curriculum coordinators.

Program Development

The following considerations were relevant to the development of Project R–3:

- Set realistic goals and keep them highly visible.
- Specify measurable behavioral objectives for each goal.
- Choose tests whose content reflects program instructional objectives.
- Choose tests suitable to item analysis so that individual study may be prescribed.
- Develop and maintain an individual progress record card for each component.
- Carefully consider personalities in matching teachers and aides.
- Provide a balance between affective and cognitive learning.

- Do everything possible to maintain the heterogeneous grouping of students.
- Recognize that there is no "scope and sequence" in the mathematics and reading components. Individualized instruction determines the scope and sequence for each student.
- Stress inductive learning.
- Provide for both the ablest and the least able student.
- Develop a variety of learning experiences.

Operational Procedures

Good operational procedures, both long-range and day-to-day, play a vital role in achieving a successful program. Some of the procedures that have contributed to the smooth operation of Project R–3 and that merit consideration when replicating Project R–3 follow:

- Inservice training sessions for the program staff are conducted on a reasonable, but structured schedule.
- All aspects of the program share in the inservice component.
- Lines of responsibility are defined and maintained.
- The program staff makes a conscious effort to remain an integral part of the total school staff.
- The program's schedule is an integral part of the school's master schedule.
- Program-unique problems are solved jointly with other school problems.
- Staff duties are clearly defined, written, and communicated.
- One person has overall fiscal responsibility even if each component has internal budgetary control.
- Within the constraints and supervision necessary to insure that the spirit of the

program is maintained, teachers are allowed as much classroom freedom as possible.

- Students in the program are counseled by regular school counselors along with all other students.
- Minimum standards of student behavior are the same for program students as for all other students.
- Individual progress cards are always available for parent conferences.

Evaluation Procedures

Evaluation procedures obviously cut across the considerations discussed in preliminary planning, program development, and operational procedures. Evaluative considerations are discussed separately, however, because they are equally important in both development and replication of a program. The following list is by no means exhaustive, but highlights Project R–3 experience.

- Evaluation design is closely integrated with all other preplanning activities.
- Project goals are translated into measurable objectives.
- Criteria for program success are clearly established.
- Purposes to be served by the evaluation are stated, i.e., for measuring student achievement, for measuring other program objectives, and for improving the program.
- Procedures for collecting the necessary data are developed.
- Evaluation is an ongoing, two-way, continuous process among the evaluator, the program administration, and the program staff.
- The results of evaluation are presented in such a way as to support cost-effectiveness analysis.

Sources for Further Information

For further information on the program contact:

Dr. Vernon Broussard
Chief, Bureau of Program Development
Division of Compensatory Education
Department of Education
721 Capitol Mall
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Mr. Leonard Hull
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The district has audiovisual documentation of the R–3 program. A slide and tape presentation is available, as are several publications prepared by the project staff. Arrangements to see the presentations or obtain the publications can be made by contacting Mr. Hull.

References

Annotated Bibliography of R–3 Materials for Dissemination. San Jose, Calif.: San Jose Unified School District. (Mimeo.)

Gaming/Simulation Workshop, Project R–3. Sunnyvale, Calif.: Lockheed Missiles and Space Co., 1970.

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MODEL PROGRAMS—Compensatory Education Series

Fifteen promising compensatory education programs for the disadvantaged are included in this series. Following is a list of the programs and their locations:

College Bound Program, New York, N.Y.
Diagnostic Reading Clinic, Cleveland, Ohio.
The Fernald School Remediation of Learning Disorders Program, Los Angeles, Calif.
Higher Horizons 100, Hartford, Conn.
The Juan Morel Campos Bilingual Center, Chicago, Ill.
Learning To Learn Program, Jacksonville, Fla.
More Effective Schools Program, New York, N.Y.
Mother-Child Home Program, Freeport, N.Y.
Preschool Program, Fresno, Calif.
Project Conquest, East St. Louis, Ill.
Project Early Push, Buffalo, N.Y.
Project MARS, Leominster, Mass.
Project R–3, San Jose, Calif.
PS 115 Alpha One Reading Program, New York, N.Y.
Remedial Reading Laboratories, El Paso, Tex.

Two programs also identified for this series were described in the *Model Programs—Reading* series: Programed Tutorial Reading Project, Indianapolis, Indiana, and Summer Junior High Schools, New York, New York. Since these program descriptions are still current and available from the Superintendent of Documents, U.S. Government Printing Office, they were not rewritten for this series.

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